

Geometry Unit 6 Worksheet #2 - Proportions

For #1-15, solve each proportion for the variable.

1) $\frac{3}{5} = \frac{x}{75}$
 $5x = 3 \cdot 75$
 $5x = 225$
 $x = 45$

2) $\frac{4}{5} = \frac{x}{15}$
 $5x = 4 \cdot 15$
 $5x = 60$
 $x = 12$

3) $\frac{z+2}{4} = \frac{27}{12}$
 $4 \cdot 27 = 12(z+2)$
 $108 = 12z + 24$
 $84 = 12z$
 $7 = z$

4) $\frac{4x+3}{12} = \frac{5}{4}$
 $5 \cdot 12 = 4(4x+3)$
 $60 = 16x + 12$
 $48 = 16x$
 $3 = x$

5) $\frac{3x-5}{4} = \frac{-13}{2}$
 $4 \cdot (-13) = 2(3x-5)$
 $-52 = 6x - 10$
 $-42 = 6x$
 $-7 = x$

6) $\frac{b+1}{b-1} = \frac{5}{6}$
 $6(b+1) = 5(b-1)$
 $6b+6 = 5b-5$
 $b+6 = -5$
 $b = -11$

7) $\frac{3}{m+5} = \frac{2}{m+1}$
 $3(m+1) = 2(m+5)$
 $3m+3 = 2m+10$
 $m+3 = 10$
 $m = 7$

8) $\frac{2x+4}{3x-3} = \frac{13}{15}$
 $15(2x+4) = 13(3x-3)$
 $30x+60 = 39x-39$
 $60 = 9x-39$
 $99 = 9x$
 $11 = x$

9) $\frac{2x+1}{18} = \frac{4x-3}{21}$
 $21(2x+1) = 18(4x-3)$
 $42x+21 = 72x-54$
 $21 = 30x-54$
 $75 = 30x$
 $2.5 = x$

10) $\frac{x-1}{x+1} = \frac{10}{14}$
 $10(x+1) = 14(x-1)$
 $10x+10 = 14x-14$
 $10 = 4x-14$
 $24 = 4x$
 $6 = x$

11) $\frac{x}{2x+1} = \frac{16}{40}$
 $16(2x+1) = 40x$
 $32x+16 = 40x$
 $16 = 8x$
 $2 = x$

12) $\frac{9}{10} = \frac{9x}{70}$
 $9 \cdot 70 = 10 \cdot 9x$
 $630 = 90x$
 $7 = x$

13) $\frac{2}{7} = \frac{b+1}{56}$
 $2 \cdot 56 = 7(b+1)$
 $112 = 7b+7$
 $105 = 7b$
 $15 = b$

14) $\frac{x-2}{8} = \frac{3}{4}$
 $8 \cdot 3 = 4(x-2)$
 $24 = 4x-8$
 $32 = 4x$
 $8 = x$

15) $\frac{y}{3} = \frac{y+6}{8}$
 $8y = 3(y+6)$
 $8y = 3y+18$
 $5y = 18$
 $y = 3.6$

For #16-22, use proportions to solve each equation.

- 16) If 2 ounces cost \$0.30, how much will 5 ounces cost?

$$\frac{2 \text{ oz}}{\$0.30} = \frac{5 \text{ oz}}{x}$$

$$2x = 5 \cdot 0.30$$

$$2x = 1.50$$

$$x = \$0.75$$

- 17) If 3.5 gallons cost \$5.18, how much will 2 gallons cost?

$$\frac{3.5}{5.18} = \frac{2}{x}$$

$$3.5x = 2 \cdot 5.18$$

$$3.5x = 10.36$$

$$x = \$2.96$$

- 18) Mike & Laura traveled 756 miles in 10 hours. Their total trip is 1296 miles. How long will the total trip take?

$$\frac{756}{10} = \frac{1296}{x}$$

$$10 \cdot 1296 = 756x$$

$$12960 = 756x$$

$$17.14 \text{ hrs} = x$$

- 19) Susan is having a 3 inch (length) by 5 inch (width) photograph enlarged so that the width is 16.5 inches. What is the length of the enlargement?

$$\frac{3}{5} = \frac{x}{16.5}$$

$$5x = 3 \cdot 16.5$$

$$5x = 49.5$$

$$x = 9.9 \text{ in.}$$

- 20) The ratio of country albums to jazz albums in a music collection is 2 : 3. If the music collection has 45 jazz albums, how many are country albums?

$$\frac{2}{3} = \frac{x}{45}$$

$$3x = 2 \cdot 45$$

$$3x = 90$$

$$x = 30 \text{ COUNTRY ALBUMS}$$

- 21) There are 237 junior girls at a high school. The ratio of girls to boys in the junior class is 3:4. How many juniors are boys?

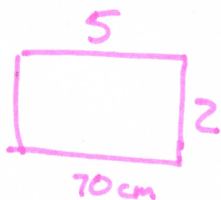
$$\frac{3}{4} = \frac{237}{x}$$

$$3x = 4(237)$$

$$3x = 948$$

$$x = 316 \text{ boys}$$

- 22) The sides of a rectangle are in the ratio 2:5. The longer side of the rectangle is 70 cm. What is the length of the shorter side of the rectangle?



$$\frac{2}{5} = \frac{x}{70}$$

$$5x = 2 \cdot 70$$

$$5x = 140$$

$$x = 28$$